INFLUENCE OF INSTITUTIONAL OWNERSHIP AND LEVERAGE TOWARDS THE LIQUIDITY OF IPOs

By

MUHAMMAD MUSLIM BIN SAMSUDIN

Thesis submitted to the
Othman Yeop Abdullah Graduate School of Business,
Universiti Utara Malaysia,
in Partial Fulfillment of the Requirement for the Master of Science (Finance)

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ABSTRACT

The aim of this study was to examine the influence of institutional ownership and leverage towards the aftermarket liquidity of 65 initial public offering (IPOs) that are listed on Bursa Malaysia, an emerging stock market in the South East Asia, from January 2011 to December 2015. This study begins from January 2011 to avoid the effects of the Global financial crisis in 2008. The data collected using the prospectus of the companies. The hypothesized effects are on liquidity based on the trading and signal and adverse selection theories. Trading and signal theory posits that institutional ownership contributes to higher level of aftermarket liquidity while adverse selection is vice versa. Trading volume is being used as a proxy of the liquidity of the stocks. Cross-section regression method is conducted to investigate the effects of institutional ownership and leverage on the liquidity of newly listed shares. The result indicates relationship between private institutional ownership and the liquidity of IPOs is insignificant. However after interacts the institutional ownership and leverage using multiplication of the both independent variables using centering mean the result shows impact of institutional ownership on liquidity of IPOs is significantly negative. The negative relationship show trading based on private information will deteriorate information asymmetry, thus will increase the adverse selection costs and eventually will decrease stock market liquidity. For leverage the result is negatively significant associate with liquidity as firms with high leverage signaling negative for investors since if firms need to finance a new project then new external financing will be needed accordingly the agency cost also increase. The significance of the study is to help the firm and investors to strategize their investment strategy as liquidity is important aspects in investment.

Keywords*: Initial Public Offerings, Institutional ownership, Leverage, Adverse selection theory, Trading and signal theory*

ABSTRAK

Tujuan kajian ini adalah untuk mengkaji pengaruh pemilikan institusi dan leverage terhadap kecairan selepas pasaran 65 tawaran awam permulaan (IPO) yang disenaraikan di Bursa Malaysia, pasaran saham baru muncul di Asia Tenggara, dari Januari 2011 hingga Disember 2015. Kajian ini bermula dari Januari 2011 untuk mengelakkan kesan krisis kewangan global pada tahun 2008. Data yang dikumpul menggunakan prospektus syarikat-syarikat. Kajian ini menggunakan hipotesis berdasarkan kepada perdagangan dan isyarat dan teori pemilihan yang buruk. Perdagangan dan teori isyarat menegaskan bahawa pemilikan institusi menyumbang kepada tahap yang lebih tinggi kecairan selepas pasaran manakala pemilihan yang buruk adalah sebaliknya. Jumlah dagangan digunakan sebagai proksi kepada kecairan saham. Kaedah regresi keratan rentas dijalankan untuk menyiasat kesan pemilikan institusi dan memanfaatkan kecairan saham yang disenaraikan. Hasil kajian telah menunjukkan hubungan antara pemilikan institusi swasta dan kecairan IPO adalah tidak penting. Namun selepas berinteraksi institusi pemilikan dan leverage menggunakan pendaraban daripada kedua-dua pemboleh ubah bebas yang berpusat bermakna hasilnya menunjukkan kesan pemilikan institusi mengenai kecairan IPO adalah negatif yang ketara. Hubungan negatif menunjukkan hubungan berdasarkan maklumat peribadi akan merosot maklumat asimetri, dengan itu akan meningkatkan kos pemilihan yang buruk dan akhirnya akan mengurangkan kecairan pasaran saham. Untuk *leverage* hasilnya adalah negatif hububg kait signifikan dengan kecairan syarikat dengan *leverage* yang tinggi isyarat negatif kepada pelabur kerana jika firma perlu membiayai projek baru kemudian pembiayaan luar yang baru akan diperlukan sewajarnya kos agensi itu juga meningkat. Kepentingan kajian ini adalah untuk membantu firma dan pelabur untuk menyusun strategi strategi pelaburan mereka kecairan adalah aspek penting dalam pelaburan.

Kata kunci: *Tawaran Awam Permulaan, pemilikan Institusi, Leverage, teori pilihan buruk, Perdagangan dan isyarat teori*

ACKNOWLEDGEMENT

In the name of Allah, the most Gracious and the most Merciful

It is with great appreciation that I wish to recognize the following individuals for their support throughout this study.

To Dr. Rasidah binti Mohd Rashid, I extend my gratitude for her guidance and continuous strong support. I appreciate her mentoring, advice, patience and she is always available when I needed help and provide countless feedbacks as well as valuable suggestions. Without her expertise this study would not have been possible and completed.

In addition, I would like to thanks my friends and those who are involve either directly or indirectly and also help myself during this research progress until it is finish to the end. Thanks for the friendship, moments and keep supporting me.

Finally, I would also like to give my special thanks to my beloved Samsudin bin Bakar and Che Nin binti Man for their understanding, emotional, morale and financial supports as well as encouragement. Thank you for their unconditional loves and inspiration.

Thank you very much.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

BRICS	Brazil, Russia, Indian, China and South Africa
ETF	Exchange Trade Fund
IPO	Initial Public Placement
LEV	Leverage
NASDAQ	National Association of Securities Dealers
NYSE	New York Stocks Exchange
OFFPR	Offer price
OFFSZ	Offer size
PRIV	Institutional ownership
PRIV*LEV	Interaction between Institutional Ownership and leverage
$\bar{r}$	Mean return
r_i	return at period i
REITS	Real Estate Investment Trust
SBF	French stock market index
SEO	Subsequent seasoned equity offerings
SPAC	Special Purpose Acquisition Companies
TURNOVER	Volume turnover
USA	United State of America
VOL	Trading volume

APPENDICES

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

According to Jung et al. (1996) and Brealey et al. (2008) sale of company securities to the public for the first time via primary market can be called as an initial public offering (IPO). An IPO normally being executed during the phase when company's equity demands cannot be fulfilled by a single investor or a group of propriety investors and the result is it eventually will change the ownership structure from concentrated in few investor's hands into bigger numbers of investors argue by Miloud (2014). As a result, the trading activity of that particular company shares become more liquid. Besides liquidity purposes for going IPO, another reason is to improve the ability of the original owners to raise a larger pool amount of funds for investment, repaying debt and growth (Mikkelson, Partch and Shah 1997). IPOs also gives opportunities for investors to obtain more profit when the shares are issued and traded publicly, in which able to enhance liquidity in order to allow firm for raising capital on the favorable term (Ritter, 1998). However not necessarily when one going for IPO it always profitable and outperform the market performances especially for investors. Aggarwal and Rivoli (1990) make a study by comparing performances of IPOs and market using return of aftermarket on IPOs and returns on market the result is market performance better than IPO in the long-run. In addition researched made by Ritter (1991) find average three-year performance of IPOs is bad than market performance and that of the matching firms. Ritter said that negative long-run performance of IPOs is due to the fads in IPO market. This shows going for IPO has its own advantages and loopholes.

Bursa Malaysia has two listing boards which are Main and ACE Market. Firms that being listed in Main Market mainly comprise big and stable companies, while ACE market include small and technology companies (Yong, 2015). Stocks listed in ACE markets characteristic are lack information on track record and also have difficulty in securing conventional financing in contrast to a company with companies listed on the Main Market which is more easier (Yong, 2015). The valuation of firms that listed on the ACE Market is harder in which may lead to higher valuation uncertainty to compare companies listed on the Main Market. The harder the valuation of IPOs leads to the greater discrepancy of estimation of the actual net worth of companies among investors. Figure 1.1 shows the statistics of the total number of companies listed on Main Market and Ace Market in Malaysia as from the year 2009 to 2015.

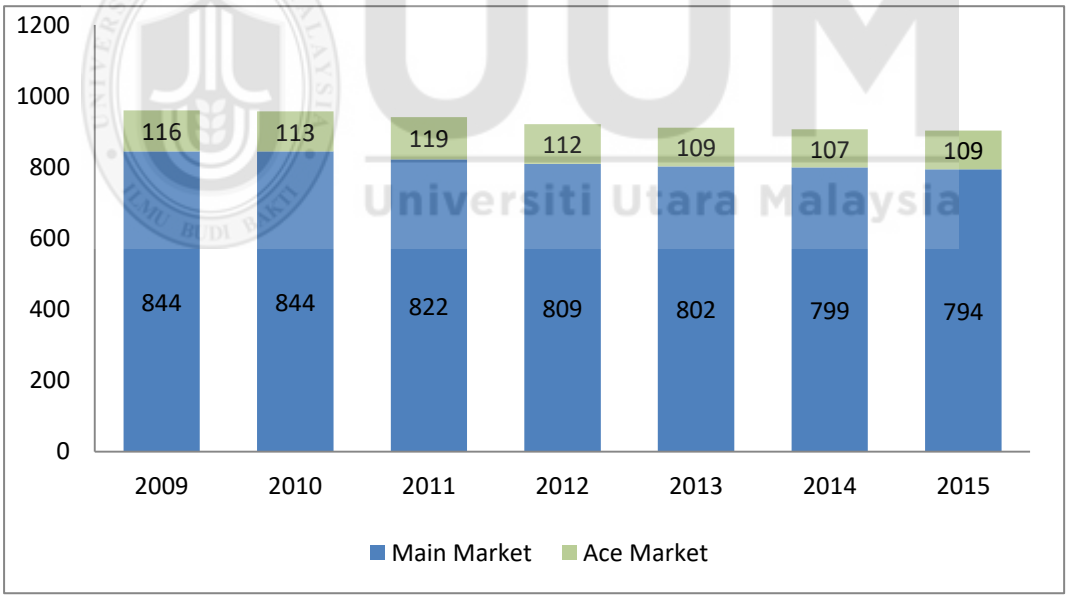


Figure 1.1
Statistics of the total number of companies listed on Main Market and Ace Market in Malaysia as from the year 2009 to 2015.
Sources: Bursa Malaysia, 2016 (www.bursamalaysia.com)

Based on the Figure 1.1, number of companies listed on Main Market is slightly decrease. In contemporary literature, liquidity can be defined as the ease and speed that one can trade stocks in the market. The higher the liquidity level the higher the speed and easiness to trade the stock and otherwise if the liquidity is low. As being discussed in previous literature, liquidity is one of the major factors for the owner of the company to go for public. The advantages of the owners that having shares that highly liquid is that it allow the investors to trade the remaining shares at a higher price according to Hahn & Ligon (2006). Investors request for a lower required rate of return on highly liquid IPOs, this allow issuers to offer the new shares at highest or reasonable price argue by Ellul and Pagano (2006). While, according to Subrahmanyam and Titman (1999) liquidity very important because it creates "snowball" effect by induces further public issues, which improves the size and efficiency of the overall share market. Based on research by Butler et al. (2005) issuers of stocks that possess a high level of liquidity have the advantage to issue subsequent seasoned equity offerings (SEO) at lower floatation costs. The result of their finding is the costs of raising external funds can be reduced by firm through improving the liquidity of their outstanding shares.

This shows it is very important to study the determinants of the liquidity of the aftermarket or post-listing liquidity of newly listed firm as owners can utilize the benefits from the liquidity of shares. There is a very limited study about the association between participation of private institution, leverage and interaction of private institution and leverage of the company with the liquidity of newly listed firm, especially in Malaysia market. Many researchers conduct a study on the relationship between IPO underpricing and aftermarket liquidity Ros Zam Zam,

Ruzita and Othman (2013) , Booth and Chua (1996) , Hahn and Ligon (2006), Pham et al. (2003) and Zheng and Li (2008). There are studies about factors affect the liquidity of the stocks but not liquidity of stocks aftermarket. For instances, Chordia et al. (2005) study about common factors drives liquidity and volatility in stocks and bonds market while Attig et al. (2006) examine the effect of large shareholding on information asymmetry and stock liquidity.

It is very difficult to estimate the performances and the level of the liquidity of the shares that being listed for the first time in IPOs. There are several macroeconomic factors or the factors that cannot be controlled by a firm that can give impact towards the liquidity one of them is a level of the interest rate as being studied by short-term interest rates significantly affect liquidity as well as trading activity (Chordia et al. 2001). The level of interest is not constant and varies over time. Changes in interest rate will affect the level of liquidity. This is because the cost of borrowing will be higher when the interest rate is high and will be more difficult for the borrower to borrow the money from a financial institution to participate in investing and trading of the stock activities lead to lower the liquidity level. Other external factor that can affect the liquidity of the stocks is the performance of the market as a whole argued by Hameed et al. (2010) that negative market returns decrease stock liquidity, especially during times of tightness in the funding market. Based on the past literature review, there are several factors that can affect the liquidity level of the stocks other than macroeconomic factors for instances involvement of private institution which can lead to a positive and negative impact on stock liquidity. Positive impact of institutional investors towards liquidity can be explain using trading and signal theory. According to this theory, institutional investor normally

possesses portfolios of stocks and it going to enhance market liquidity. Institutional investors will trade aggressively on their portfolios and will boost liquidity of the stock market. Study conduct by (Ajina et al. 2015) in France shows institutional investors which possess more information has a positive and significant effect on liquidity of the stock. Institutional investors are often known as an informed agent while uninformed agents who are minority shareholders. While the negative effect of institutional investors on liquidity can be explain using adverse selection theory. This theory assumes institutional investors can be label as informed investors. According to Bae et al.(2002) private institution can be classified as blockholders and they have an access to private information. Trading on private information are consistent with changes in ownership of institutional investors based on Bushee and Goodman (2007). This lead to information asymmetry, increase the adverse selection costs and decrease the stock market liquidity Ajinkiya et al. (2005)

Leverage is another variable that can affect the liquidity of the stocks. According to Lesmond et al. (2008) argues that when debt financing proportion increase over asset, liquidity of stocks will increase proportionate with the change in the structure of the capital. Leverage also related to information asymmetry as a firm that has more debt leverage allows informed trader to hold a larger percentage of firms stock and then lead to increase adverse selection cost. According to Tong and Ning (2004) company with high debt ratio provide a poor signal as the company will face financial difficulties in the future. Hence, institutional investors prefer to invest in the firm that possesses low leverage ratio. Therefore, the interaction between a private institution and capital structure is very important in affecting the liquidity of the stocks and newly listed stocks.

1.2 Problem Statement

Liquidity is not only important for investors and owner of the firm, it also important for the economy. Liquidity represents the opportunity for investors to enter and exit a market efficiently, ant it allow investors to trade at fast pace with a little risk embedded on particular investment according Ros Zam Zam et al. (2013) As according to Bencivenga et al. (1991) stock market liquidity plays a vital role in economic growth. Whenever stock market is not liquid, many profitable long-term investments would not be undertaken because savers would refuse to lock their investments for long periods of time. For developing countries like Malaysia, according to Ros Zam Zam et al. (2013) it is important for Malaysia to ensure the liquidity is very vital to attract sizeable local and foreign-based companies to go public via the Bursa Malaysia. Therefore, investor can enter and exit market efficiently and also trade at a fast pace with a low risk and avoid being stuck in a particular investment for too long. Besides that, study of the factors influencing liquidity need to be conducted in Malaysia because of its unique features. For example, policy implement by the government that is special allocation to Bumiputera to improve the participation of a group in equity market. So it is expected liquidity in the Malaysian market will be more high and more interesting to study because besides allocation for private placement and public, there is additional group added in the market which is Bumiputera and this will encourage them to trade in the stock market.Other features that make Malaysian IPO and stock market is difference because of 88 percent of listed companies hold Shariah status.

Based on the past study, study conducted in Malaysia to examine liquidity and performance of stocks of IPO authors using underprice as an independent variable

for example Jelic et al. (2001), Ros Zam Zam Sapian (2013), Yong, (1996),Yong and Isa (2003) and Yong et al. (2002).

There is no study being conduct in developing countries such as Malaysia regarding private institution ownership and liquidity of post listed company in Malaysia. According to Agarwal (2009) in 2005, institutional investors hold 65 percent of the equity in firms listed on the NYSE/AMEX, which shows a compound annual growth rate of 6.3 percent within the past 25 years. Institutional investors always labeled as an informed agent means they got more information than public investors because of their huge volume assets, they got an advantage to get the private information. Theory that related to the association between information asymmetry and stock liquidity can be divided into two which are adverse selection hypothesis which concludes that information asymmetry has a negative impact on stock liquidity as information asymmetry will increase adverse selection costs and decrease stock market liquidity (Ajinkya et al. 2005). On the other hand, the signal theory developments claim that such a share-ownership is a governance mechanism. It should by nature encourage investors to invest in these companies and therefore increase transaction volumes and market liquidity. Normally institutional investors associate with information asymmetric because Ramalingegowda and Yu (2012) find that higher institutional ownership is associated with greater conservatism in firms' financial reporting and that this positive association is more pronounced among firms with higher information asymmetry. Other than that, study by Aslan et al. (2007) find solid evidence firms with higher institutional ownership have a higher possibility of informed trading which mean asymmetric information exists when there is institutional investors participate in the investment. There are few studies conduct in developing countries eventhough asymmetric information is higher in developing

countries than develop country argued by Even Eldeomaty (2008).Therefore investors could not absorb finding from other market In this study will be focus in Malaysia because of Malaysia used fixed-price offering for pricing mechanism in IPO commonly. The fixed-price offer is simple pricing method in which only requires less effort from the underwriter and the firm (Chen et al, 2011). The issuing firms will decide to go for a lower fee and greater IPO underpricing as compared to book building offer, which demands a higher fee but smaller underpricing. The offer price is going to be set prior to IPO allocation, in which that investor do not have opportunities to place a bid (Yong, 2015). However, the offer price under fixed-price mechanism does not contain any information about the investors' valuations of IPOs. Thus, this may occur higher divergence of opinions among investors. Because of the employment of this mechanism, there is the existence of high level of asymmetric information among IPO investors (Yong, 2015).

There are several study regarding the influence of institutional investors on stock market liquidities in develop country for example Pritsker (2006) and Morales-Camargo (2006) which they conduct the research using data of the prospectus from US firm. Other research is conduct by Aymen et.al. (2015) but the research conduct in France and its relate to the secondary stock market that being listed on SBF 250 index. Other than this, Carole and James (2006) also conduct a study on the relationship between institutional ownership and liquidity in the Australian market and Dennis and Weston (2001) in the USA. Most of the studies being conducted in develop market so this study intends to bridge the gap by conducting the research regarding influences of institutional ownership on liquidity of the IPOs in Malaysia.

Secondly, this study also argues that leverage of the company can also influence the liquidity of stocks. Study conduct by Muhammad Umar and Gang Sun (2015) show a decrease in leverage results in lower stock liquidity of the bank. It is supported by Frieder and Martell (2006) and Anders et al. (2014) which shows a positive association between both variables that is an increase in leverage results in higher in stock liquidity. In contrast, Lesmond et al. (2008) the relationship between leverage and liquidity of the stocks are inversely related. There also study the impact of liquidity on leverage such as Lipson and Mortal (2009) and Udomsirikul et al. (2011) who found that increase in stock liquidity leads to lower cost of equity, which results in lower leverage. However, most of the studies above authors are not using primary market. The research by Lipson and Mortal (2009) and Udomsirikul et al. (2011) use the annual report to construct the data of leverage whereas the current study is going to contributed to body of knowledge using the prospectus information prior to IPO listing.

A study conducted by Aymen et al. (2014) adverse selection which one of the components of asymmetric information which represent by private institution ownership is not significant towards liquidity of the stock. In other words, private institution ownership is not a stand-alone variable which can affect the liquidity of the stocks. This paper intends to bridge the gap by interacting between private institution ownership and leverage and study that impact on liquidity of the post listed stocks in Malaysia market. The interaction is based on the argument of Chaganti and Damanpour (1991), Grier and Zychowicz (1994), Bathala et al. (1994) and Crutchley and Jensen (1996) who find a negative relationship between institutional ownership and leverage. The finding shows that private institution will

normally invest in a company which possesses lower leverage and it is supported by Tong and Ning (2004) where firms with low leverage ratio are more preferable by institutional investors.

In a nutshell, this research intends to examine the association between private institution ownership, leverage, the interaction between private institution ownership and leverage with the liquidity of newly listed stock in developing market which is Malaysia.

1.3 Research Question

As referring to present study, there are three research questions are raised, such as

1. Does institutional investor ownership influence IPO liquidity?
2. Does leverage influence IPO liquidity?
3. Does interaction between institutional investor ownership and leverage that influence IPO liquidity?

1.4 Objectives of Research

The main objective of this research is to analyse the role of three main explanatory variables (institutional ownership, leverage and earnings per share/growth) that influence the IPO liquidity. There are three objectives of this research specifically, such as,

1. To investigate the impact of institutional investor ownership on IPO liquidity.
2. To study the impact of leverage on IPO liquidity.

3. To examine the interaction between institutional investor ownership and leverage that influence IPO liquidity

1.5 Scope of the Study

In this research, the sample of IPOs is extracted from those IPOs issued for listing on the Bursa Malaysia, in which the period is taken from January 2011 to December 2015. The analysed IPOs are listed on the Main Market and ACE Market. The data regarding IPOs are collected from the website of Bursa Malaysia and IPO prospectuses of companies.

The final sample excludes the IPOs in which includes restricted offer-to-sale to Bumiputra investors, restricted offer to sale to eligible employees, tender offer, and special issues. This is consistent to Rashid et al. (2014) and Abdul-Rahim and Yong (2008). Also, IPOs from the industries such as Real Estate Investment Trust (REITS), Exchange Trade Fund (ETF), Special Purpose Acquisition Companies (SPAC) and finance are excluded from this present study. Some of the companies are omitted from the research because of not enough data available.

In order to explain the IPO liquidity, the present currently focuses on some pre-listing factors such as institutional investor ownership, leverage and interaction between both of them.

1.6 Significance of Study

The present study describes the theoretical background, in which states that the hypotheses and empirical predictions are developed. This research is important as it solve the research gap in existing IPO literature through analyzing the pre-listing characteristics, such as institutional ownership, leverage, and growth, in explaining IPO liquidity, in which have rarely being done in developing the country, especially in Malaysia. The evidence provided regarding this research is mostly according to the developed countries.

As from the present study, the findings from the relationship between the liquidity of the stocks that newly listed in the public and its determinants such as leverage and institutional investor ownership able to help firm and investors to strategize their investment strategy for instances owner of the firm can lower their costs when issue SEO so the excess money can be used to engage in other profitable investment. While for the investor liquidity is very vital as whenever investor miscalculates and wrongly invests in stocks that have high level of liquidity, it is easy for the investor to sell the particular stock at the market price in the market. So investor investment will not stick for a long period. Other than that, this study able to improve knowledge and information for researchers and academicians on the association between liquidity of the newly listed stock in the public and leverage, institutional investor ownership and interaction between institutional investor ownership and leverage in Malaysia since there is no research being conduct yet.

1.7 Organization of Study

As from this research, it comprised of five chapters. The first chapter presents the background of the study, problem statements, objectives, and scope of the study. The second chapter presents an empirical review of previous studies and literature with performance, the explaining of the key factors influence IPO liquidity and theoretical review. The third chapter describes the data collection, a methodology that employed in the study, research framework and the mathematical specifications of the models. The fourth chapter discusses the data presentation and interpretation the findings. The last chapter summarizes the findings from the analysis, conclusion, and implications of findings, recommendations, and suggestions for further studies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers the previous literature related to the factors that affect the liquidity of post listed shares in public. There are five sections are contained in this chapter. The first section discusses the theories related to the present study, such as adverse selection theory and trading theory. The second section illustrates about the dependent variable of the research. The third section defines and explains the key factors influence liquidity of newly listed stocks. The fourth section reviews the control variables of the present study. Next, the fifth section discusses the factors affecting the liquidity of the IPOs. The last section is the conclusion of this chapter.

2.2 Theories Related to Literature

There are some theories in which related to the impact leverage and private institution ownership on liquidity of stock of newly listed. Information asymmetry exists between institutional ownership, leverage and stock market liquidity. There are two theories that can be deduced which are the adverse selection hypothesis and the trading hypothesis.

2.2.1 Adverse Selection Hypothesis

Adverse selection hypothesis is one of the theory that being applied in the present study. This hypothesis assumes that institutional investors are considered as informed investors. According to Bae et al. (2002) private institution can be classified as blockholders and they have an access to private information. Trading on private

information are consistent with changes in ownership of institutional investors based on Bushee and Goodman (2007). This lead to information asymmetry, increase the adverse selection costs and decrease the stock market liquidity Ajinkiya et al. (2005). One of the earliest authors that study this theory are Glosten and Milgrom (1985) who suggest that the market maker faces adverse selection costs due to the presence of institutional investors. As the owner of a large amount of a company's shares, institutional investors have a capability to access the private information and able to collect information about the firm value (Bae et al., 2002). Stock trading is associate with institutional investor ownership this is because based on study by Bushee and Goodman (2007) trading based on private information are consistent with the changes in institutional investor ownership. A recent study that proves adverse selection hypothesis is Aslan et al.(2007) firms with a higher allocation of institutional ownership have a higher probability of informed trading and Boehmer and Kelly (2009) prove that institutional investors boost the informational efficiency of the price. The argument confirm by Ramalingegowda and Yu (2006) that higher institutional ownership associate with higher information asymmetric and being supported by LaFond and Watts (2008). However, study by Sharma (2005) in India shows that there is insignificant association between institutional investor ownership and stock liquidity.

Early studies by Grossman and Stiglitz (1980), Glosten and Milgrom (1985), Kyle (1985) and Easley and O'Hara (1987) shows that the adverse selection hypothesis assume that when informed shareholders possess more superior information compared to outside shareholders, an information asymmetry arises which in the reduces liquidity. This is because they need to incur higher adverse selection costs.

According to Ajinkya et al. (2005) because of change in institutional investor ownership link to trading on private information it will deteriorate the information asymmetry. Further, it will increase adverse selection costs and decrease stock market liquidity. Carole and James (2006) conduct research in the Australian market, they examine the association between institutional ownership and liquidity and find a negative impact of institutional ownership on share turnover which is a proxy for liquidity of the stocks. Blume and Keim (2012) examine the association between illiquidity and institutional stock ownership and find out institutions enhances stock market liquidity.

2.2.2 Trading and Signal Theory

According to this theory, institutional investors normally possess portfolio that consists a lot of stocks. They will trade aggressively on their portfolios which positively influence market liquidity. When investors frequently trade the stocks within their portfolio, transaction costs are reduced, which will enhance the liquidity according to Demsetz (1968), Merton (1987) and Schwartz and Shapiro (1992). According to Healy and Palepu (2001) valuable and informative information will attract investors and encouraged them to make transactions. This leads to lower transaction costs, and make the market more liquid. The association between institutional investors and liquidity also can be related to signal theory. Institutional shareholders are able to perform monitoring activities on management, and this is considered as a positive signal to investors. Institutional investors are able to pay higher monitoring costs to protect their assets (Shleifer and Vishny, 1988).

2.3 Liquidity

Liquidity is variable that cannot be observed (Acharya and Pedersen 2005, pp. 385). According to Pagano (1989), the level of liquidity for an asset can be measured from two dimensions which are a risk on the last value of the asset and the existence of a market which is preparing to absorb the impact of the selling of the asset by not causing extreme changes of its price. Liquidity can be influence by three factors which are dealer financing costs, turnover rate and inventory risk. Holmstrom and Tirole (1993) liquidity of secondary market will increase when ratio proportion of retail investors is high, as it will lead to a decrease in asymmetric information as well as reduce adverse selection costs and will boost more trading activity. Liu (2006) define liquidity into four dimensions which are the quantity of the trading, trading speed, cost of trading and impact towards price. However not even single dimensions above use to measure liquidity. Based on the past literature, there are several proxies being used to measure liquidity which are trading volume, dollar volume, shares turnover and bid-ask spread.

Trading volume and dollar volume measures activities of the trading of the particular stocks. High value of trading volume and dollar volume shows level of liquidity for the particular shares are high. Demir et al (2004), Zheng and Li(2007), Ros Zam Zam Sapian et al.(2013) and Ajina et al. (2015) while dollar volume being adopted by Chordia et al.(2001b) and Ros Zam Zam Sapian et al.(2013).

Shares turn over being used as a proxy of liquidity to capture the dimension of the quantity of the trading. Authors that used this measurement are Datar et al.(1998) Chordia et al.(2001b), Pham et al.(2003), Li et al.(2005), Morales-Camargo(2006)

and Ros Zam Zam Sapian et al.(2013). According to Datar et al.(1998) using shares turnover as a measurement of liquidity is better than trading volume because trading volume alone as the dependent variable is not controlling the demand of trading. Based on their research there is a negative association between volume turnover and stock returns. It also being supported by Easley et al. (2002) uses the same proxy and the get the result of the negative relationship between turnover of the volume and returns of the stock. Because of that investors demand a premium for the stock that less liquid.

Bid-ask spread being adopted by Amihud and Mendelson(1986), Brennan and Subrahmanyam(1996), Ellul,A, & Pagano, M. (2006**)** and Ajina et al. (2015). Based on Amihud this measurement is a better proxy than others proxies of liquidity. According to Ajina et al. (2015), the bid-ask spread includes the issue of adverse selection. So in event of information asymmetry, bid-ask spread exacerbates and liquidity decrease. Other than the common measurement or proxies of liquidity as being discussed above, there is other such as PIN measure proposed by Easley et al. (1996). The measurement not only related to fundamental risk and adverse selection but also expected level of liquidity. It is different with previous proxies as more focus on historical data and not attempt to expect the future level of liquidity. Other authors that used this measurement is Ellul,A., & Pagano, M. (2006).

2.4 Empirical research relationship between private institution ownership and liquidity of stocks

There are very few empirical studies that show a significant relationship between the allocation of IPOs to private institution ownership and liquidity of new shares in the

secondary market. The existing literature discussion mainly uses data of a company that already being listed in the public and the secondary data. Unlike the research of this paper, the private institution ownership data will be obtained from the prospectus. As being discussed, the association between private institution ownership and liquidity of the stocks can be negative and positive depending upon the study related to adverse selection theory or trading and signal theory. In IPO, the argument of institutional influence on the underpricing has been stress by Kiymaz(2000) in line with the argument, this study argue that the conditions of institutional ownerships could also broadens the trading activity of the new shares accordingly leads the liquidity to a higher level. Most of the finding using two types of liquidity measurement which are bid-ask spread and trading volume. For bid-ask spread, in case of information asymmetry, the gap or difference between best bid price and the best ask price is larger. The market is liquid when bid-ask spread is low. While for trading volume it measures the width of the market. Hence, the higher the trading volume, the market will be more liquid Demsetz (1968).

Based on the trading and signal theory, one of the earliest empirical studies is from Kothare and Lux (1995) using data from NASDAQ market. The authors using bid-ask spread to measure the level of liquidity. Their result shows there is a positive relationship between private institution ownership and liquidity using bid-ask as a proxy. This confirms the trading and signal theory as more private institution ownership will boost more trading of the shares in the market and increase the liquidity of the stocks. This empirical research also being supported by Dennis and Weston (2001), Rubin (2007) and Blume and Keim's (2012) which shows a positive association between liquidity and institution shareholding ownership also using bid-ask spread as a proxy and also being conducted in US market. Their argument is

institutional ownership of the shares will reduce spreads and lead to enhance the level of the liquidity. The theory of trading and signal also supported by Ajina et al.(2015) using 162 French-listed firms from 2007-2009, the liquidity measurement using bid-ask spread and trading volume, the result shows the proportion of institutional investor has a positive and significant effect on the level of liquidity of the stock market. The institutional investors perform the high trading activity as they possess more valuable information and eventually affect market liquidity. The authors also try to test the adverse selection theory and prove it. However, the authors fail to do so. As for developing country Rhee and Wang (2009) using data of Jakarta stock exchange which companies from Indonesia, the result shows private institution ownership positively influence liquidity of stock markets also using the bid-ask spread as a proxy. However according to Kini and Mian(1995) using 1985 data for 1063 NYSE firms, they find out the positive relationship between spread which is a proxy of liquidity and block holdings which represent institution ownership but it is not significant.

There are several empirical studies confirm the adverse selection theory one of them is Ajinkya et al.(2005). They conduct their research using data of US firms and find out that institution investor ownership trading based on private information will deteriorating information asymmetry, thus will increase the adverse selection costs and eventually will decrease stock market liquidity. This is supported by Pritsker(2006) and Morales-Camargo(2006) conducted their research using primary data from NASDAQ and Hong Kong market using trading volume as the proxy of the liquidity. The result is an allocation of IPOs to institutional investors negatively influences the liquidity of the new shares in the secondary market. The difference of

their studies with the others is they using primary data instead as the independent variable that give impact on the liquidity of the newly listed shares while others research using secondary data. However, in developing country, Sharma (2005) conduct research using Indian firms find out relationship between institutional investor capital shares and liquidity are not significant.

Table 2.1
Summary of Literature related to relationship between private institution ownership and liquidity of stock of newly listed company.

Authors	**Year**	**Stock exchange**	**Result**
Kini and Mian	1995	NYSE firms	Participation of institutional investors measure using blockholdings towards the shares liquidity using spread not significant
Kothare and Lux	1995	NASDAQ	Positive relationship between private institution ownership and liquidity using bid-ask as proxy
Dennis and Weston	2001	USA market	Institutional investor shareholding positively influence liquidity of companies listed in USA market.
Ajinkya et al.	2005	Factiva(Formerly known as Dow Jones News retrieval) US market	Institution investor ownership trading based on private information will deteriorating information asymmetry, thus will increase the adverse selection costs and eventually will decrease stock market liquidity.
Sharma	2005	Indian market	Relationship between institutional ownership and liquidity are not significant
Pritsker	2006	NASDAQ	Liquidity of the new shares in the secondary market negatively influence by allocation of IPOs to institutional investors
Morales-Camargo	2006	Hong Kong market	Liquidity of newly listed shares being negatively affected by allocation of IPOs

			to institutional investors
Carole and James	2006	Australian market	Negative association between institutional ownership and liquidity using shares turnover as a proxy.
Rubin	2007	NYSE	Liquidity positive related to institutional investor.
Rhee and Wang	2009	Jakarta Stock Exchange	Private institution ownership positively influence liquidity of stock markets using bid-ask spread as a proxy
Ajina et al.	2015	France	Proportion of institutional investors has a positive and significant effect on stock-market liquidity, which confirms the signal theory and trading hypothesis. Fail to prove adverse selection theory.

2.5 Empirical research relationship between leverage and liquidity of stocks

According to Lesmond et. al (2008) increasing the debt level in the capital structure using pure leverage lead to increase in information asymmetry in the equity. This is because using pure leverage, debt financing will concentrate investor's information advantage in remaining equity and as a result privately informed traders increase their information advantage. The increase in information asymmetry is being translated increase in equity trading costs. The consequent effect is increasing equity liquidity costs that affect the firm's cost of capital (Amihud and Mendelson, 1989). According to Lesmond et. al (2008) issuing more debt allows informed trader to possess a larger proportion of firms shares, because of that more private information will be concentrated into existing equity and eventually increased the asymmetry information between inform and uninformed investors. The result is increasing the sensitivity of the informed traders signal of firm value and increase the variance of the informed trader demand. The market maker reacts to the increased variance in

order to flow and reduces the liquidity of the stock and it can be related to adverse selection theory. Lesmond conducts this research using data of 276 firm from US firms and the result is an increase in debt financing will decrease the liquidity of the common stock proportion the change in capital structure. It is supported by Frieder and Martell (2006) which they used data from firms listed on NASDAQ from 1988 to 1998 and the result increases in leverage results in a lower bid-ask spread which is proxy for liquidity. Other findings that support negative finding between leverage and liquidity is Bharath, Pasquariello and Wu (2008) using data firms from the US and the result is higher percentage of debt financing have lower equity level. Firms with high leverage may indicate the firms reduce their ability to finance the growth of the firm. On other hand firms with high leverage also signaling negative for investors since if firms need to finance a new project then new external financing will be needed accordingly the agency cost also increase, thus it may impact the liquidity of firms with leverage to reduce according to Miller (1992) and Myers (1978).

However according to Anders et al.(2014) which using data from US firms from 1989-2008 and Muhammad Umar and Gang Sun (2016) conducted research using financial institutions from BRICS countries, the association between leverage and liquidity of the positively related. There also study the impact of liquidity on leverage such as Lipson and Mortal (2009) and Udomsirikul et al. (2011) found that increase in stock liquidity leads to lower cost of equity, which results in lower leverage. All of the studies above use secondary data to obtain the leverage or the debt ratio. It is different with this paper as data will be used is from prospectus which

is primary data and the liquidity measure which is a volume in this paper using newly listed company unlike most of the study before use secondary market.

2.6 Interaction between private institution ownership and leverage towards liquidity of the stocks

In some occasion, the relationship between private institution ownership and liquidity appears to be not significant. For example, studies make by Kini and Mian (1995) using data of develop country which is US and Sharma (2005) using data from Indian firms which is developing the country. Both of these researches fail to find a significant relationship between private institution ownership and liquidity of the stocks. Based on their research, it can be said that private institution ownership is not a not a stand-alone independent variable to influence the liquidity of the stocks. It needs a moderator and interaction with another independent variable to make the relationship of private institution ownership and liquidity of shares become significant.

Institutional investors have a huge experience in retrieving and interpreting valuable information on firm performance. They also got an expertise and assessing information and evaluate the firm potential of surviving in the future. Agency theory posits that an optimal capital structure and ownership structure can reduce agency costs according to Jensen and Meckling (1976) and Jensen (1986). Because of this the relationship between capital structure and ownership structure exists and can be found in the research. Based on the empirical studies conducted by Chaganti and Damanpour (1991), Grier and Zychowicz (1994), Bathala et al. (1994) and Crutchley and Jensen (1996) find a negative relationship between institutional ownership and

leverage. It can be interpreted as an institutional investor will choose to invest in stocks with a lower level of leverage normally measured by debt ratio. It is supported by Tong and Ning (2004) firms with high leverage ratio give a negative signal that the firm faces a future financial problem. Because of that, institutional investor opts to choose firms with a low level of the leverage ratio. It can be concluded that in certain circumstances, leverage must become the moderating of the relationship between private institution ownership and liquidity of the stocks.

2.7 Control Variables

To investigate the influences of the three factors or explanatory variables on the liquidity of newly listed stocks, this research controls the four other variables in which have been found that there are significant affects the liquidity of the stocks. The control variables for this study are price volatility, firm size, offer price, shareholder retention and board characteristic board company either being listed in the Main market or Ace Market. The following part will explain briefly regarding the relationship between each of control variable and liquidity of the post-listed stock.

2.7.1 Price Volatility

Price volatility measures the information content and information asymmetry in the market. Based on the Chordia et al. (2001a) volatilities can give impact on stock liquidity as well as trading activity. Stock market volatility influences stock liquidity via its impact on inventory risk and the risk of participation in investing for short-term speculative activities. It is positive relationship between volatility and liquidity of the stock. It is supported by Handa and Schwartz (1996) and Foucault (1999).

However, according to Heflin and Shaw (2000), Espinosa et al. (2008) and Chae (2005) prove a negative relationship between liquidity and the volatility of prices.

2.7.2 Offer Size

This component is considered a proxy for information asymmetry and agency costs. Demsetz (1968) suggests that small companies incur high levels of information asymmetry. Moreover, equities firms with weak market capitalization are less liquid (Heflin et al., 2005). Offer size can affect the level of liquidity because of larger offer size allows more participation of investors and it will enhance the trading activity. According to Amihud et al.(1999) whenever the number of investors ownership of the company increase, it will give a positive impact on the liquidity.

2.7.3 Shareholder Retention

According to the signaling theory, the larger retention by pre-IPO owners, the more participation of the investors in the secondary market and it will enhance liquidity of the market. Downes and Heinkel (1982), Jain and Kini (1994) and Minsheng Li (2005) find a significant positive association between post-IPO operation performance and the proportion of equity retained by the pre-IPO owners. It is supported by Zheng et al. (2003), underpricing boosts liquidity, especially when the proportion of shares retained by pre-IPO owners is large. Therefore high shareholder retention rates attract more trades, provide quality assurance, and improve IPO aftermarket liquidity.

2.7.4 Offer Price

Offer size is the price at which publicly issued securities are made available for purchase. It is expected firms that have a lower offer price will positively affect liquidity of the shares. The sources of this data are totally from the published sources such as Bursa Malaysia database and company's prospectus

2.7.5 Board Characteristic

Listing board is used as a proxy for firm size. Listing board is used as a proxy for firm size, since IPOs listed on the ACE Market are smaller in size (based on the paid-up capital, as stated in the listing requirements) compared those IPOs listed on the Main Market Main Market are used as a proxy for big-sized firms, and those listed on the ACE Market are used as a proxy for small-sized firms. It is expected that IPO listed in Main Market tend to be more liquid after listed in Bursa than IPO that listed in Ace Market

CHAPTER THREE

DATA AND EMPIRICAL METHOD

3.1 Introduction

This chapter discusses the methodology of this research. This chapter basically discussed the data collection, sample description, hypothesis development and research framework. This chapter also discusses on the equation of the model as well as the technique of data analysis. This study also used the statistical test in order to achieve the research objectives of this study include: (i) to investigate the impact of institutional investor ownership on IPO liquidity (ii) to study the impact of leverage on IPO liquidity and (iii) to examine interaction between institutional investor ownership and leverage towards IPO liquidity. This study also controls some variables that have been acknowledged in previous studies such as volatility, offer size, offer price, share retention and board characteristic.

3.2 Data

This study uses secondary data, which are the IPOs that are listed on Bursa Malaysia, from January 2011 to December 2015. This study begins from January 2011 to avoid the effects of the Global financial crisis in 2008. The total of the sample data for the present study is 90 IPOs that include all the sectors in Malaysia that employing fixed price mechanism. The contents of data consist of volume of newly listed shares, private placement, the percentage of debt ratio (leverage), volatility, offer size, offer price, share retention ratio and board characteristic either stock being listed in Main or Ace market towards liquidity of newly-listed shares in the public. These data are

extracted from the websites of Bursa Malaysia and Securities of Commission, company's prospectus and Data Stream.

Table 3.1
The Number of IPOs List According to the Category of Sector from Year 2011 to 2015.

Year / Sector	2011	2012	2013	2014	2015	Total
Trading / Service	10	8	6	5	4	33
Construction	2	1	0	1	2	6
Industrial	5	3	3	1	1	13
Consumer	2	1	2	2	1	8
Technology	5	0	0	1	2	8
Properties	3	1	2	2	0	8
Plantation	0	1	0	1	0	2
SPAC	0	0	2	1	1	4
REITS	1	1	0	0	1	2
ETF	0	0	0	1	2	3
Finance	0	1	1	0	0	2
Total Sample	28	17	16	15	14	**90**

3.3 Sample Description

The sample of this study consists of IPOs in which issued by companies that are listed on Bursa Malaysia from January 2011 to December 2015. A total number of 90 new issues are reviewed in this study. There are certain criteria are taken into account while collecting data. As the same condition with Rashid et al. (2014) and Abdul-Rahim and Yong (2008), IPOs which are offered as offer-to-sale, public issues, private placement, or a hybrid of any forms of these forms are selected and included in this research. This research does not include any special types of offers that are restricted offer-to-sale to Bumiputra investors, restricted offer-to sale to eligible employees, tender offer and special issues. Also, the industries such as Real Estate

Investment Trust (REITS), ETF,SPAC and finance (for example, ELK-Desa Resources Berhad and Tune Insurance Berhad) are excluded from this present study, by reason of the different presentation format of financial statements as compared to other industries (Rashid et al., 2014).After the related data excluded, a total number of final samples for this present study are 72 IPOs, in which represents 80% of the total number IPOs listed within year 2011 to 2015.

Table 3.2
The Distribution of IPOs Sample from Year 2011 to 2015.

Year	Population	Final Sample
2011	28	24
2012	17	13
2013	16	13
2014	15	13
2015	14	9
	90	**72**

3.4 Dependent Variable Measurement

Aftermarket liquidity of the new issues is measured using share turnover as being adopted by Dhemir et al. (2004), Zheng and Li (2008), Ros Zam Zam Sapian et al.(2013) and Ajina et al.(2014). Then the value of liquidity is being average over the period of 30 trading days after the first week of listing.

$$\text{VOL}= \frac{1}{30} \sum_{T=6}^{T+29} vol$$

Where,

VOL= Trading volume of IPO *i* on the day *t* where *t*=6,…, t+29,

Liquidity is measured by the average trading volume. It shows the width of the market.

This study omitted data of the first 5 trading days to prevent the effect of abnormal trading activities because of the flipping activities or price support by the underwriters that can have a significant enough influence on the aftermarket liquidity according to Krigman et al., (1999). Past studies have shown during the first week or 5 days of listing, trading volume of IPO are abnormally high (Aggarwal, 2003; Aggarwal and Rivoli, 1990; Ellis, 2006; Miller and Reilly, Pham et al, 2003) .This study limited to only 30 trading days after the first week of listing for calculating liquidity because to minimize disturbances due to other corporate events and or market-wide according to Ellul and Pagano (2006), Morales-Camargo (2006) and Pham et al.(2003)

3.5 Independent Variable Measurement

The research focuses on three factors that affect the liquidity of newly listed company in public, in which whether expected to give great impacts on the liquidity of post listed company in Malaysia market. The three main independent variables for this study are institutional ownership, leverage and interaction between institutional ownership and leverage.

3.5.1 Institutional Ownership

Private placement is being used as a proxy of the institutional investor ownership in this research as being suggested by Yong (2011). According to Kothare and Lux (1995), there is a positive relationship between private institution ownership and liquidity. This confirms the signal theory as more private institution ownership will boost more trading of the shares in the market and increase the liquidity of the stocks. On the other hand, study makes by Morales-Camargo (2006) more allocation

of IPOs to institutional investors leads to a negative influence on the liquidity of newly listed shares. This relationship confirm the adverse selection theory as institution investor ownership trading based on private information will deteriorating information asymmetry, thus will increase the adverse selection costs and eventually will decrease stock market liquidity. Hence this study argues that percentage of involvement of institutional investor ownership in IPO shares can affect the level of liquidity of newly listed shares either positively or negatively.

$$\%\ of\ Institutional\ Ownership = \frac{Number\ of\ Shares\ Issued\ Through\ Private\ Placement}{Total\ Number\ of\ Shares\ Issued\ at\ IPO}$$

(Eq. 3.1)

3.5.2 Leverage

Leverage is being measured by the total liabilities to total assets. Findings by Frieder and Martell (2006) increase in leverage results in a lower bid-ask spread which is proxy for liquidity. According to Lesmond (2008) also explain that issuing more debt allows informed trader to possess a larger proportion of firms shares, because of that more private information will be concentrated into existing equity and eventually increased the asymmetry information between inform and uninformed investors. The result shows increase in the sensitivity of the informed traders will signal the firm value and increase the variance of the informed trader demand. Further, the sensitivity of informed investors could increase the adverse selection costs and accordingly reduce the liquidity of the stocks. Therefore, the relationship between leverage and liquidity can be related to adverse selection theory.

$$Leverage = \frac{Total\ Liabilities}{Total\ Assets}$$

(Eq. 3.2)

3.5.3 Interaction between private institution ownership and leverage

Institutional investors have a huge experience in retrieving and interpreting valuable information on firm performance. They also got an expertise and availability of platform to assess information and evaluate the firm potential of survival in the future. Tong and Ning (2004) finds firms with high leverage ratio give a negative signal and shows that the firm faces a future financial problem. Because of that, institutional investor opts to choose firms with a low level of the leverage ratio. In some occasion, leverage can be a moderator in the relationship between private institution ownership and liquidity of the stocks.

Interaction between private institution ownership and leverage= centering mean of private institution ownership × centering mean of leverage.

(Eq. 3.3)

3.6 Control Variables Measurement

There are the five control variables in this present study. These variables are price volatility, firm size, offer price, shareholder retention, and board characteristic either listed in Main or Ace market.

3.6.1 Volatility

Price volatility measures the information content and information asymmetry in the market. According to Heflin and Shaw (2000), Espinosa et al. (2008) and Chae

(2005) there is a negative association between liquidity and the volatility of prices. Volatility in this study uses the standard deviation of the issuing firm's stock returns (Chen et al., 2006). It is being calculated by using standard deviation share price of the 30 days after the first week listed in Bursa.

$$\sigma = \sqrt{\frac{\sum_{i=1}^{N}(ri - \bar{r}) \ 2}{N-1}}$$

(Eq. 3.4)

$\bar{r}$ = mean return

ri= return at period i

3.6.2 Offer size

Demsetz (1968) suggests that small companies incur high levels of information asymmetry. This component is considered a proxy for information asymmetry and agency costs. Equities firms with weak market capitalization are less liquid (Heflin et al., 2005). This study used offer size as a proxy to examine the information asymmetry. The offer size the total unit share offered multiplies by offer price.

$$Firm\ size = Total\ unit\ shares\ offered \times offer\ price$$

(Eq. 3.5)

3.6.3 Shareholder retention

According to the signaling theory, the higher shareholderretention by pre-IPO owners will attract more investors in the secondary market and increase market liquidity. Downes and Heinkel (1982) and Jain and Kini (1994) find a significant

positive relation between post-IPO operation performance and the proportion of equity retained by the pre-IPO owners.

$$Share\ retention\ ratio=(\ issued\ and\ fully\ paid\text{-}up\ share\ capital - offer\ for\ sale\ unit)\ /\ issued\ and\ fully\ paid\text{-}up\ share\ capital + Public\ issue\ units)\times 100 \quad \text{(Eq. 3.6)}$$

3.6.4 Offer price

Offer size is the price at which publicly issued securities are made available for purchase. It is expected firms that have a lower offer price will positively affect liquidity of the shares. The sources of this data are totally from the published sources such as Bursa Malaysia database and company's prospectus.

3.6.5 Board Characteristics

Listing board is used as a proxy for firm size. Listing board is used as a proxy for firm size, since IPOs listed on the ACE Market are smaller in size (based on the paid-up capital, as stated in the listing requirements) compared those IPOs listed on the Main Market. Main Market are used as a proxy for big-sized firms, and those listed on the ACE Market are used as a proxy for small-sized firms. It is expected that IPO listed in Main Market tend to be more liquid after listed in Bursa than IPO that listed in Ace Market. This study used a dummy variable by taking a value 1 if listed in Main market and 0 otherwise.

3.7 Hypothesis Development

The developments of the hypotheses in this study are according to the research question and research objectives as discussed in Chapter 1. These hypotheses are supported by the literature from previous studies, in which measure the relationship of liquidity of newly listed stock and some explanatory variables

3.7.1 Institutional Ownership

Institutional investors always labeled as an informed agent means they got more information than public investors because of their huge volume assets, they got an advantage to get the private information. Theory that related to the association between information asymmetry and stock liquidity can be divided into two which are adverse selection hypothesis and signal theory. The idea of signal theory is institutional investors possess a portfolio of shares. Institutional investors will turnover their portfolio more often, transaction costs are reduced, which increases liquidity (Demsetz, 1968; Merton, 1987; Schwartz and Shapiro, 1992). The empirical studies by Kothare and Lux(1995) , Dennis and Weston (2001) Rubin (2007), Rhee and Wang (2009) and Ajina et al.(2015) prove signal theory that institutional investors ownership has a positive relationship with the liquidity of the stocks.

While theory related to adverse selection suggest that institution investor ownership trading based on private information will deteriorating information asymmetry, thus it will increase the adverse selection costs and eventually will decrease stock market liquidity. Glosten and Milgrom (1985) suggest that the market maker faces adverse selection costs due to the presence of institutional investors. The empirical studies

that prove this theory are Pritsker(2006), Morales-Camargo(2006), Carole and James(2006). Consequently, this research develops the hypothesis that:

H_0=0 -There is no significant relationship between the liquidity of newly listed shares and institutional ownership.

H_1≠0- There is a significant relationship between the liquidity of newly listed shares and institutional ownership.

3.7.2 Leverage

Lesmond (2008) also explain that issuing more debt allows informed trader to possess a larger proportion of firms shares, because of that more private information will be concentrated into existing equity and eventually increased the asymmetry information between inform and uninform investors. The result is increase the sensitivity of the informed traders and signals of firm value and increase the variance of the informed trader demand. The market maker reacts to the increased variance in order to flow and reduces the liquidity of the stock and this can be related to adverse selection theory. It is supported by Frieder and Martell (2006) and Bharath, Pasquariello and Wu(2008). However according to Anders et al.(2014) and Muhammad Umar and Gang Sun (2016) the association between leverage and liquidity is positively related. Hence, this research develops the hypothesis that:

H_0=0 -There is no significant relationship between liquidity of newly listed shares and leverage.

H_2≠0- There is a significant relationship between the liquidity of newly listed shares and leverage.

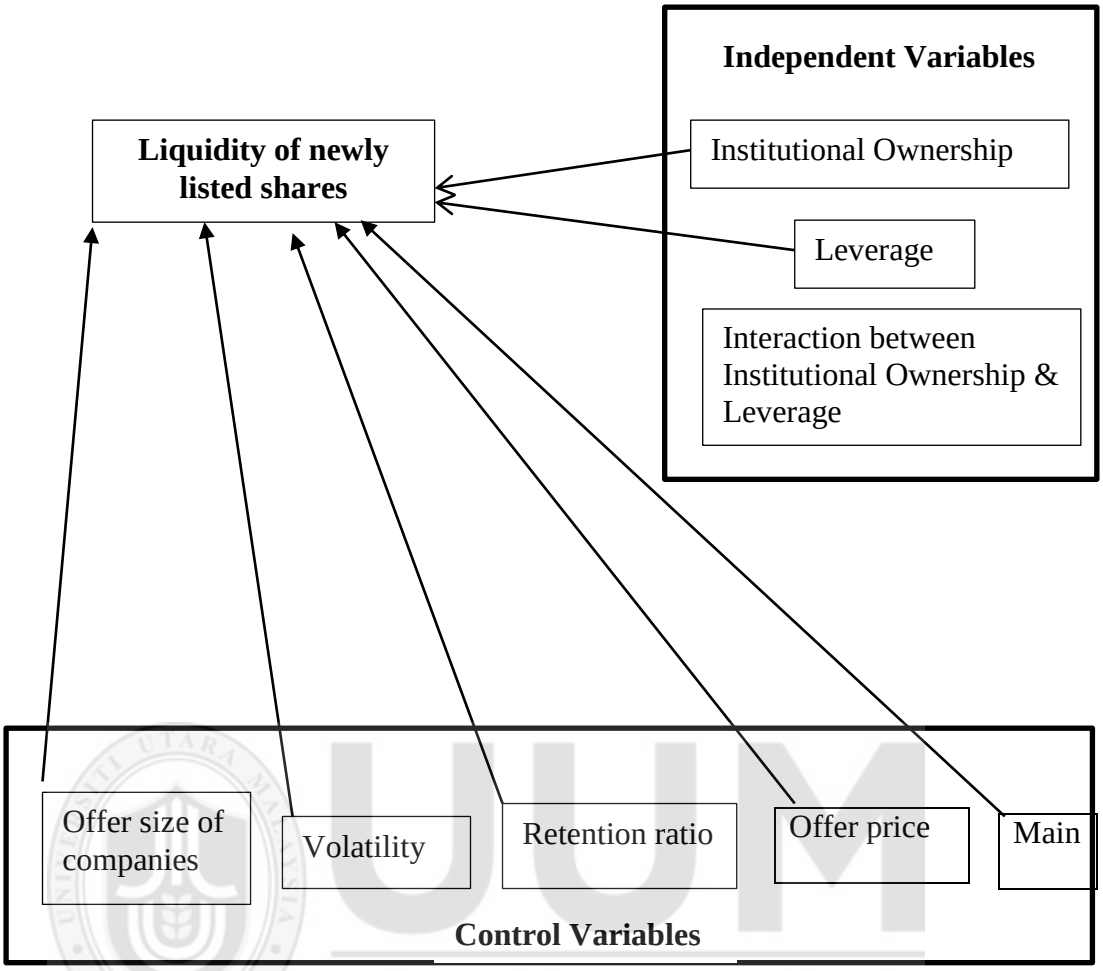
3.7.3 Interaction between private institution ownership and leverage

Previous studies shows that there is an insignificant relationship between institutional investor involvement and liquidity Kini and Mian(1995) and Sharma(2005). Based on their research the independent variable which is private institution ownership is not stand-alone variable. It needs to interact with leverage. It is because based on the empirical studies conducted by Chaganti and Damanpour (1991), Grier and Zychowicz (1994), Bathala et al. (1994) and Crutchley and Jensen (1996) find a negative relationship between institutional ownership and leverage. It can be interpreted as an institutional investor will choose to invest in stocks with a lower level of leverage normally measured by debt ratio. Hence, private institution ownership and leverage has a connection and relationship. The study made by Tong and Ning (2004) shows firms with high leverage ratio gives a negative signal that the firm faces a future financial problem. Because of that, institutional investor opts to choose firms with a low level of the leverage ratio. This is due to institutional investors have a huge experience in retrieving and interpreting valuable information on firm performance. They also got an expertise in assessing information and evaluate the firm potential of surviving in the future. Hence, this research develops the hypothesis that:

H_0=0 -There is no significant relationship between liquidity of newly listed shares and interaction between private institution ownership and leverage

$H_3 \neq 0$- There is a significant relationship between liquidity of newly listed shares and interaction between private institution ownership and leverage

3.8 Research Framework



3.9 Model Specification of Research

Cross sectional multiple regression modeling is used for the coefficient estimation for each of the independent variables. Also, it is used for examining hypothesis of study and evaluating the importance of each of the independent variable (Ramasamy and Abar, 2015). The equation of regression model contains three independent variables and three control variables. Below is the model of the equation:

$$liquid = \beta_0 + \beta_1 PRIV + \beta_2 LEV + \beta_3 OFFSZ + \beta_4 OFFPR + \beta_5 RISK + D_6 MAIN + \beta_7 SHARE\ RETENTION + \gamma_8 \text{CENTLEV} * \text{CENTPRIV} + \varepsilon$$

(Eq. 3.7)

Where:

β_0 = The regression intercept,

β = The regression coefficients of respective variables,

LIQUID = Liquidity of newly listed shares in the public,

PRIV = Institutional Ownership,

LEV = Leverage,

PRIV*LEV = Interaction between Institutional Ownership and leverage,

RISK = Volatility of the shares prices,

OFFSZ = Natural log of size of offer of IPOs,

OFFPR = Offer price,

MAIN = Main board or Ace,

ε = Error term of regression

3.10 Techniques of Data Analysis

In this part, there are some pre-steps that need to be taken into account before going to analyze and test the hypotheses. Data cleaning process is performed through checking whether there are any extreme values on univariate or multivariate, in other words, called outliers. According to Meyer et al. (2006), outliers will give a new pattern in a dataset, however, it can signal anomalies in a data set in which should be removed before performing the statistical tests. As refer to the present study, there are several companies for example FGV Berhad to be removed from a data set due to its extremely high value. Therefore, the total sample for this study is concluded as 65 Malaysian IPOs.

After the data cleaning process, there are several data analysis techniques that perform in this present study, such as Normality Test, Autocorrelation issue, Multicollinearity Test and Heteroscedasticity issue. All of these analyses are analyzed by using Eviews Version 8.0.

3.10.1 Normality Test

Normality test is examined and its result is determined through descriptive statistics of the data set of present study, including the Jarque-Bera statistics and the graph of the histogram. The Jarque-Bera statistics is not significant (more than 0.05) if the data are normally distributed and the bell-shaped graph is shown. However, the data are not normally distributed if the p-value of Jarque-Bera statistics is less than 0.05.

3.10.2 Correlation Coefficient Analysis

Correlation coefficient analysis is a statistical technique in which to identify the dependency of two or more variables. The correlation coefficient is vital to determine the correlation between a dependent variable such as offer price of IPOs, independent variables such as institutional ownership, leverage and earnings per share, and constant variables such as price-to-earnings ratio, offer size of companies and lock-up ratio. The correlation coefficient value lies between +1 and -1. It is interpreted as if any values regardless negative or positive values that more than 0.7 shows a strong correlation, whereas a value that within 0.31 to 0.69 shows medium correlation and the value less than 0.3 indicates that there is a weak correlation.

3.10.3 Multicollinearity Test

According to Gujarati (2003) Multicollinearity can be defined as a linear relationship between two or more independent variables in a regression model. Multicollinearity problems cause the bias in coefficient estimation (Yoo et al., 2014; Hair et al., 1998), in which describes that a variable explains about the response is overlapped by other variables are a set of other variables explain. If multicollinearity problems increase, it is a difficult to discover the impact of any single variable, and hence produces biased estimation in coefficients for variables due to having more interrelationships. Moreover, the large value of standard errors is detected if collinearity increases.

According to Ringim et al. (2012), the general rule of thumb for the correlation is the correlation value should not be more than 0.75, the otherwise multicollinearity problem exists. Therefore, detecting the multicollinearity problems can be performed through applying variance inflation factor (VIF). It is an indicator to determine whether there is a strong linear relationship between two or more variables. Generally, if the value of VIF exceeds 10, indicating a problem of multicollinearity in regression (Hair et al., 2010). In order to solve multicollinearity problems, a variable should be removed or employment of alternative to ordinary least squares regression.

3.10.4 Autocorrelation Issue

Sometimes ordinary least squares (OLS) is not the best estimation method. This is because regression may cause the underestimation of the true variance, due to not pairwise independent among the residuals of the regression (Wang & Akabay, 1995). Autocorrelation is one of the indicative of aspects of the faulty model specification.

Durbin-Watson (DW) is the indicator of the autocorrelation problem. The problem occurs when the value of DW is lower than 2 from the result of OLS regression. In order to resolve the autocorrelation problems, Newey-West covariance estimator is employed after the computing of the ordinary least squares (OLS) through adjusting the autocorrelation problems.

3.10.5 Heteroskedasticity Issue

Heteroscedasticity is a meant of the circumstance that the variability of a variable is not equal across to the range of values of a second variable that predicts it (Taylor, 2013). The error term, ε is an important assumption in regression analysis in which determine whether it is homoscedastic or heteroscedastic in regression function. If the result shows homoscedasticity, this means that there are same variances. Otherwise, it is heteroscedasticity if there are different variances. Thus, heteroscedasticity can be indicated and corrected by using White Test. This test is employed after the computing of the OLS through adjusting the heteroscedasticity problems.

3.11 Summary of Chapter

This chapter discussed the research design, data description, research framework, hypotheses development, data collection, model specification and multiple regressions, technique of data analysis and the measurement explanation of the dependent, independent and control variables. Therefore, Eview 8.0 statistical package is applied in the method of data analysis.

CHAPTER FOUR

DATA ANALYSIS AND EMPIRICAL FINDINGS

4.1 Introduction

This chapter discusses about the findings after computing the analysis of the relationship between factors (institutional ownership, leverage and interaction between institutional ownership and leverage) and liquidity of newly listed shares. The first section of the chapter illustrates preliminary results from the descriptive statistics of each of the dependent, independent and control variables. The second section explains the correlation between pre-listing IPO characteristics and liquidity of newly listed shares. The third section analyzes the data whether its distribution is normal, and also examines whether there is multicollinearity, autocorrelation and heteroscedasticity problems existed before analyzing the regression model. The fourth section interprets the findings of the regression analysis in order to investigate whether the results are consistent with hypotheses that developed in Chapter Three. For convenience, the hypotheses are restated as follows:

H_1= There is a significant relationship between the institutional ownership and liquidity of newly listed shares.

H_2= There is a significant relationship between the leverage and liquidity of newly listed shares.

H_3= There is a significant relationship between interaction between private institution ownership and leverage with liquidity of newly listed shares.

4.2 Descriptive Statistics

The analysis of descriptive statistics is important for us to understand the basic characteristics of the data. Table 4.1 shows the results of all variables from descriptive statistics in the term of mean, median, maximum value, minimum value and standard deviation (s.d.). Since there are companies for example (FGV Berhad) to be removed from a data set due to its extremely high value of earnings per share, therefore the total sample for this study is concluded as 65 IPOs. For the below-mentioned date our total number of samples are 5IPOs listed from 2011 to 2015.

Table 4.1
Results of Descriptive Statistics of Each Variables For 65 Malaysian IPOs Listed in 2011- 2015.

Variables	Mean	Median	Maximum	Minimum	Std. Dev.
VOLUME	5633.647	2817.847	36256.21	26.88000	7391.115
SHAREHOLDER RETENTION	69.77287	70.86774	94.78369	8.937290	11.76471
RISK	0.051210	0.038495	0.159891	0.002991	0.037973
PRIV	54.22912	68.09211	93.33000	0.000000	31.36148
OFFERPRICE	1.029231	0.750000	3.380000	0.120000	0.803886
OFFER SIZE	4.98E+08	49639832	6.37E+09	7321280	1.16E+09
LEV	0.468308	0.470000	1.240000	0.020000	0.263756
BOARD	0.753846	1.000000	1.000000	0.000000	0.434122

As reported in Table 4.1, the average of the newly listed volume shares in 30 days is 5633 and the standard deviation is 7391. This shows that there is a higher dispersion in liquidity or the volume of the 30 days average for new listed shares in Bursa

Malaysia. In more deep examination at the individual shares from 65 companies, the maximum value of the volume is 36256, which is reported for Bioalpha Holdings Bhd as listing on the year 2015, shows that many participation of buyer s and sellers in this particular stocks which boosts the level of the volume. While, the minimum value for the volume is EITA Resources Berhad which listed in Bursa Malaysia on the year 2012. It indicates low level of participation of investors during that 30 days period.

For an independent variable, the mean percentage for private placement is 54.23%. For further investigation, the maximum percentage of private placement in IPO is about 93.33% that is reported by Ideal Jacobs Corporation Berhad, indicates the proportion of investment in IPO listed firm consists of a high percentage of institutional investors. However, the minimum percentage of the private placement is 0%, in which to be found that there are some Malaysian IPOs does not issue new shares or offer shares to institutional investors. The second explanatory variable that is leverage ratio shows the average value of around 0.47 times. As being investigate that the highest debt ratio obtain is 1.24 times, in which reports for XOX Berhad. This firm may more depend on the debt financing for capital structure. On the other hand, the lowest value leverage ratio is 0.02 times (Smartag Solutions Berhad), in which states that this firm is mostly use equity financing rather than debt financing for their capital structure.

There are five control variables to be discussed into this statistical analysis such as risk of the stock in 30 days, offer price, log offer size, Main board and retention ratio. For risk, the mean value is about 0.051 times together with a standard deviation of 0.038. The highest value of risk is 0.16 which is MSM Malaysia Holdings while for

the lowest one is 0.003 which is PESTECH International Berhad. Higher volatility of the stock prices show the company stock price fluctuates very frequent. For offer price, the mean value is 1.03 and its standard deviation is 0.80. Which shows the deviation is low. The highest value of the offer price 3.38 which is MSM Malaysia Holdings and the lowest value is 0.12 which company name is Pasukhas Group Berhad. For log offer size, the average value is 7.93 while its standard deviation is 0.77. Company that had the highest log offer size is IHH which is 9.80 meanwhile the lowest is MANAGEPAY and the value is 6.86. For share retention, the mean is 69.77 and the standard deviation value is 11.76. Bioalpha Holdings Bhd has the highest share retention ratio which is 94.78 and WPRTS has 8.93 which is the lowest ratio. The last control variable is the board characteristics. The Board mean is 0.75 which mean 75 % of the sample in this study being listed in Main market and 25 % listed in Ace market.

4.3 Correlation Analysis

Table 4.2
The Coefficient Correlation of Variables

	Volume	Leverage	Private	Log Offer Size	Offer Price	RISK	Shareholder	Board
Volume	1	-0.1308	0.07847	0.0871	-0.05439	0.06559	0.1687893	-0.227235
Leverage		1	-0.0929	0.33333	0.2579983	0.11677	-0.171705	0.130036
Private			1	-0.3353	-0.379082	-0.2289	-0.014497	-0.249196
Log Offer Size				1	0.8715678	0.27056	-0.41831	0.5088287
Offer Price					1	0.37514	-0.327242	0.4923976
RISK						1	0.0600682	0.2604056
Shareholder retention							1	-0.250685
Board								1

Table 4.2 shows the correlation matrix between the variables. The astonishing results show that all of the correlation between dependent which is liquidity of newly listed and independent variables is weak. However if the correlation are weak it just a preliminary indication that both variables may not be significant. For example correlation between dependent variable and private institution ownership is 0.078 which signify weak relation between both variable. There is also weak correlation between liquidity and the leverage as the value is -0.13 which shows high level of debt financing allocation is negatively related to liquidity of newly listed shares in Bursa Malaysia which is supported by Frieder and Martell (2006). For control variables, Offer price variable show negative correlation with liquidity as the value is -0.054. This means whenever offer price of IPO companies is higher, it will reduce the liquidity level as less investor will attract towards expensive stocks. Risk or volatility shows positive correlation with liquidity as the value indicates 0.066. It is contradict with Chae (2005). Correlation between liquidity and share retention is positive which is the value of the correlation is 0.168. It shows that when proportion of shares retained by pre-IPO owner is large it will attract more investors in secondary market and increase market liquidity and it is supported by Jain and Kini (1994). For offer size, it indicates positive correlation with the liquidity proved by the value of the correlation is 0.087. Lastly for Board effects is control in this study using dummy variable. The correlation value show -0.227 which means negative correlation between company that listed in Main market and liquidity of newly listed company in Bursa Malaysia.

However, it is noticed that the strong positive correlation between offer price and offer size which is 0.87 and may indicate the multicollinearity problems. Therefore, variance inflation factor (VIF) is applied to examine whether there is existing of multicollinearity problems.

4.4 Results of Diagnostic Testing

Prior to regression analysis, this study will report the diagnostic tests that have been carrying out to ensure the models are valid and could be interpreted in a great confidence. The techniques to be discussed are normality of distribution, multicollinearity, autocorrelation and heteroscedasticity.

4.4.1 Normality of Distributions

As referring to Figure 4.1, it shows that the regression residuals are not normally distributed. This is because p-value of Jarque-Bera statistics is less than 0.05, in which indicates the significant results. Although it finds out that the distribution is not normal, but yet the violation of non-normality should not be the main concern since in finance using the secondary data normally provide extreme value and it often to provide a great deviate from other residuals.

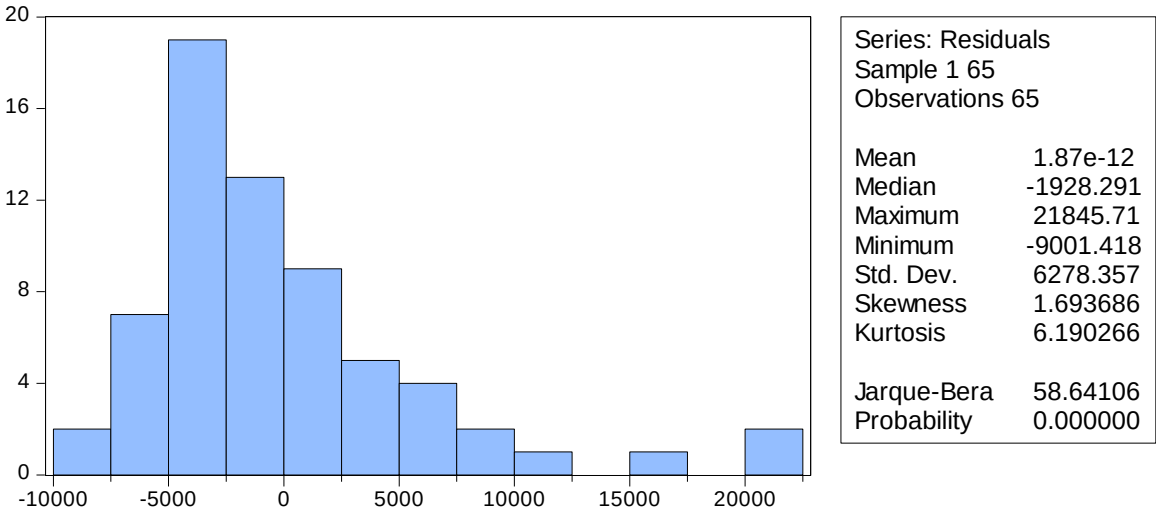


Figure 4.1
Results of Normality Test

4.4.2 Multicollinearity

According to Ringim et al., (2012) the general rule of thumb for correlation is not more than 0.75. Referring to Table 4.2, all the correlation value between independent variables are less than 0.75. Muliticollinearity problem can be detected by variance inflation factor (VIF), through determining whether there is a strong linear relationship between two or more variables. According to Hair et al. (2010), VIF value more than 10 indicates that a potential problem of multicollinearity in regression. As referring to the Appendix C, the VIF values of all variables are less than 10, in which indicates that there is no multicollinearity problems exist in regression model. This means that it does not cause any bias while estimating coefficients for variables. Therefore, it does not include any removal of variables from regression model.

4.4.3 Autocorrelation

Autocorrelation is an issue that normally arise from the computing the regression analysis on model. This problem may affect regression that will underestimate the true variance in which not pairwise independent among the residuals of regression (Wang and Akabay, 1995). Durbin-Watson (DW) is the indicator of identifying autocorrelation problem, in which the value must be around 2.0. As referring to Table 4.3, it shows the value of Durbin-Watson is around 1.91. Therefore, the correction on autocorrelation is not needed in this study since the value of Durbin-Watson is near to 2.0

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4.4.4 Heteroskedascity Test

In order to examine the variance of errors are constant, White's test is applied to analyze the heteroscedasticity problems in regression model. According to the results in Appendix D, the value of F-statistic indicates heteroskedasticity problem, as it can be proved from p-value less than 0.05. In order to solve the heteroskedasticity problem, "Heteroskedasticity consistent covariance" is applied in the present study in which to estimate regression model and meanwhile to correct the standard error for heteroskedasticity

4.5 Results from Regression Analysis

The present study uses cross-sectional multiple regression in order to address the hypothesis that developed on Chapter Three. Also, this research estimates model specification in order to observe the effect of independent variables on the liquidity of newly listed shares in Bursa Malaysia. Table 4.3 shows the findings from the liquidity

model that has been corrected for heteroskedasticity problem by applying "Heteroskedasticity consistent covariance" method.

Table 4.3
Results of Cross-Sectional Regression to Explain Liquidity

Variables	**Expected Sign**	**Dependent Variable : Offer Price**	
		Coefficient	**t-statistics**
Constant		-65887.57	-3.102741
Placement placement(PRIV)	+	30.59699	1.386897
Leverage (LEV)	-	-5920.550	-1.694660*
log offer size(OFFSZ)	+	8791.917	3.651670***
Offer price(OFFPR)	-	-5687.545	-3.076839***
Volatility(RISK)	-	36025.58	1.955912*
Board(MAIN)	-	-4711.669	-1.744454*
Share retention(Retention)	+	148.2939	1.523006
CENTLEV*CENTPRIV	-	-171.4925	-2.276496**
Adjusted R-squared		0.223284	
F-statistic		3.299777	
Number of Observations		65	
Durbin-Watson stat		1.911062	

A superscript *, ** or *** indicates significance at significant at 10%, 5%, and 1%, respectively

Above Table 4.3 indicates the adjusted R-squared value for this regression is about 22 percent. It explains that the model incorporates with three independent variables and five control variables that mention on Equation 3.8, the regression model explains about 22 percent of the variations in liquidity of newly listed shares in Bursa Malaysia. The F-statistics value of this regression is significant and confirms the goodness-of-fits of models ($p<0.01$). In term of the sign of coefficient, there is a significant positive and negative linear relationship between the liquidity of newly listed shares and independent variables. Hence, the model regression can be written as below:

$$y = -65887.57 + 30.59699x_1 - 5920.550x_2 + 8791.917x_3 - 5687.545x_4 + 36025.58x_5 - 4711.669x_6 + 148.2939x_7 - 171.4925\,x_8$$

(Eq. 3.8)

The following section will discuss the regression result on the influence of the main variables on the liquidity.

4.5.1 Effect of Independent Variables on Liquidity of Newly Listed Shares

Results in Table 4.3 shows three independent variables (institutional ownership and leverage)are analyzed in order to explain liquidity of newly listed shares (LIQUIDITY) and provide findings for H_1, H_2 and H_3. In this section, each one of these variables will be discussed separately.

A. Institutional Ownership

Institutional ownership in this study is proxy by computing the percentage of the private placement that involve into IPO market. The result of the regression from table 4.3 shows positive relationship between institutional ownership with liquidity of newly listed shares in Bursa. However, the relationship is not significant. The result is could not support H_1 which is there is relationship between the liquidity of newly listed shares and institutional ownership. The positive relationship result supported by Kothare and Lux(1995), Dennis and Weston(2001), Rhee and Wang(2009) and Ajine et al.(2015). The authors discuss that institutional investors possess portfolio that consist a lot of

stocks and they will trade aggressively on their portfolio which positively influence market liquidity. This theory based on trading and signal theory. The positive result contradict with the research made by Ajinkya et al (2005), Pritsker (2006), Morales-Camarg(2006) and Carole and James (2006). They believe higher institutional ownership considered as informed shareholder that possess more information and it lead to rise in information asymmetric. As a result adverse selection costs will increase and eventually decrease the stock liquidity. However result of this study show insignificant result of the relationship between institution ownership and liquidity of the shares and it being supported by Kini and Mian (1995) and Sharma (2005) as the authors also fail to prove there is relationship between institutional investors and liquidity. This research proves that institutional ownership as independent variable need interaction and moderator to strengthen the relationship liquidity of newly listed shares in the public. The reason for the insignificant result in Malaysia market because of as being discussed Malaysia adopted fixed-price offering for pricing mechanism in IPO and this lead to high asymmetric information. It can be concluded that the private institution is well informed and possess more valuable information than the public about the future prospects of the company whenever they purchase particular stock. As a result, the institutional investors will not easily sell the stocks and they will hold the stock for long-term investment.

B. Leverage

Leverage is measured as the ratio of total liabilities to total assets. The result from the table 4.3 shows the relationship between leverage and liquidity of newly listed shares in

Bursa Malaysia is significantly negative related. It mean the second hypothesis (H_2= There is significant relationship between leverage and liquidity of newly listed shares) is supported. The findings is consistent according with studies made by Frieder and Martell (2006), Bharath, Pasquariello and Wu (2008) and Lesmond (2008) that is increasing in leverage or debt financing will lower the liquidity of the equity. Lesmond (2008) also explain that issuing more debt allows informed trader to possess a larger proportion of firms shares, because of that more private information will be concentrated into existing equity and eventually increased the asymmetry information between inform and uninform investors. The result is increase the sensitivity of the informed traders signal of firm value and increase the variance of the informed trader demand. The market maker reacts to the increased variance in order to flow and reduces the liquidity of the stock. This can be related to adverse selection theory. On other hand firms with high leverage also signaling negative for investors since if firms need to finance a new project then new external financing will be needed accordingly the agency cost also increase, thus it may impact the liquidity of firms with leverage to reduce according to Miller (1992) and Myers (1978). However the result is contradict with Anders et al.(2014) and Muhammad Umar and Gang Sun (2016) as the result of their studies shows the association between leverage and liquidity of the shares are positively related. According to Muhammad Umar and Gang Sun (2016) suggest that increase in leverage as result of implementation of Basel 3 will not only affect bank liquidity creation, but will affect the stock liquidity of the banks as well.

C. Interaction between Institution ownership and leverage

The result of the association between institution ownership and liquidity of newly listed shares in Bursa Malaysia is not significant. As far as the relationship is concerned, studies make by Kini and Mian (1995) using data of develop country which is US and Sharma(2005) using data of Indian firms which is developing country shows the same outcome which is those relationship is not significant. Hence, this study uses the interaction of institutional ownership and leverage in influencing the liquidity of the IPOs. The interaction effects is motivated based on the argument of Tong and Ning (2004), whereby insiders do have a better information on the firms prospect thus insiders may not involve in firm with high leverage due to uncertainty in firms value in future and accordingly it may have influence on the liquidity of the IPOs after listing. The result in Table 4.2 shows whenever leverage become moderator of relationship between institution ownership and liquidity of newly listed shares, H3 is accepted which means there is a significant relationship between liquidity of newly listed shares and interaction between private institution ownership and leverage. The finding also supported by Tong and Ning (2004) whereby firms with high leverage ratio give a negative signal that the firm faces a future financial problem and because of that, institutional investor opt to choose firms with low level of leverage ratio. This is due to institutional investors have a huge experience in retrieving and interpreting valuable information on firm performance. The relationship between institution ownership and leverage also proven to be negative related. It is because based on the empirical studies conducted byChaganti and Damanpour (1991), Grier and Zychowicz (1994), Bathala et al. (1994) and Crutchley and Jensen (1996) who find a negative relationship between institutional

ownership and leverage. The result of the regression after the interaction between institutional ownership and leverage is institutional ownership is negatively associates with liquidity of IPOs. This result supported by Morales-Camargo (2006) and Pritsker (2006) which is liquidity of newly listed shares is negatively influence by allocation of IPOs to institutional investors. The relationship between both variables confirms the adverse selection theory which posits that institutional investors considered as informed investors. According to Bae et al. (2002) private institution can be classified as blockholders and they have an access to private information. Trading on private information are consistent with changes in ownership of institutional investors based on Bushee and Goodman (2007). This lead to information asymmetry, increase the adverse selection costs and decrease the stock market liquidity Ajinkiya et al. (2005).

4.5.2 Effect of Control Variables on Offer Price

Results in Table 4.2 show findings of five control variables (offer size, offer price, risk, board characteristics and shareholder retention). For offer size, there is significant positive relationship between liquidity of newly listed shares in Bursa Malaysia and offer size, at the significance level of 0.01. The result supported by Ros Zam Zam Sapian et al.(2013) . Higher offer size, means more shares available in market and it will allow investors to trade more whenever it being listed in Bursa Malaysia. Result shows for offer price is there is significant negative association between liquidity and offer price, at the significance level of 0.01. It is supported by Ros Zam Zam Sapian et al.(2013) that offer price is negatively related to liquidity of the IPOs. This is due to underpricing as lower offer price can be related to underprice. Booth and Chua (1996)

argue that investment banks purposely underprice the IPOs to create a broad initial ownership dispersion that eventually increases the level of aftermarket liquidity of the new issues. Risk however shows a significant positive relationship with liquidity. The positive relationship shows that the riskier the stock the larger the spread and the higher the turnonver. It is consistent with with Carter and Manaster's (1990) argument that if investors have scarce resources to invest in information acquisition, they specialize in acquiring information for the most uncertain investments. The positive relation between risk and turnover supports the view that the difference in investors'opinions attracts trades. It is contradict with Heflin and Shaw (2000), Espinosa et al. (2008) and Chae (2005) as they find out negative association between liquidity and the volatility of price. Ros Zam Zam Sapian et al.(2013) and Mingsheng Li et al.(2005) studies support this research which is volatility or risk that measured by standard deviation is positively related. The next control variable which is Board shows negatively significant relationship with liquidity of the shares at significance level 0.10. Main Market are used as a proxy for big-sized firms, and those listed on the ACE Market are used as a proxy for small-sized firms Othman Yong(2011). The last control variable is shareholder retention ratio. The result of the regression shows that shareholder retention ratio is insignificantly positive related to liquidity of newly listed shares. This result supported by Mingsheng Li et. al (2005) who find out that retention ratio is positive related to volume turnover ratio and it confirm the signaling theory which indicate that the high retention by pre-IPO owners will attract more investors in the secondary market and increase market liquidity. The result is different with Zheng et. al(2003) when proportion of share retained by pre-IPO owners is large it will reduce secondary-market

liquidity because of high retention per se reduces the number of shares floating in the market

4.6 Summary of the Chapter

Overall, the descriptive statistics shows average of the newly listed volume shares in 30 days is 5633 and the standard deviation is 7391. This shows that there is a higher dispersion in liquidity or the volume of the 30 days average for new listed shares in Bursa Malaysia between 2011 and 2015 periods. For correlation analysis, all of the correlation between dependent which is liquidity of newly listed and independent variables is weak. Only correlation between offer price and offer size shows strong positive correlation. Hence, diagnostic test which is multicollinearity test is employed to test the multicollinearity problems and the result shows there is no problem. Furthermore, diagnostic test like normality test and the results illustrate data is not normally distributed. Autorcorrelation test is not being carried because the value of Durbin-Watson is around 1.91. Therefore, the correction on autocorrelation is not needed in this study since the value of Durbin-Watson is near to 2.0. Besides, heteroskedasticity test is performed before regression analysis, indicating that value of F-statistic indicates heteroskedasticity problem, in which after this is solved by "Heteroskedasticity consistent covariance"

From the regression result, this study finds that institutional ownership is positively insignificant related to liquidity of newly listed shares in Bursa Malaysia in which not supported the hypothesis, H_1. Other results indicate there is significant negative

relationship between leverage and liquidity of newly listed shares This result support the hypothesis H_2, in which supposes that leverage is negatively related to the liquidity. Besides, there is negative significant relationship between liquidity of newly listed shares and interaction between private institution ownership and leverage,H_3 hypothesis is supported.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter illustrates about the overall summary of the present study. First section provides the summary of the study that includes the empirical findings of the results. Second section explains about the implication of the present study according to the computed results. Third section relates to the limitation of the present study. The last section provides the recommendations of the future research.

5.2 Summary of the Study

This chapter summarizes the key contribution of the present study and its empirical findings. The purpose of the present study is to provide the empirical evidence on the impact of the institutional ownership, leverage and interaction between institutional ownership and leverage towards liquidity of new listed share in Malaysia market. Besides, other variables that act as control such as offer size, offer price, risk, board characteristics and shareholder retention ratio are applied in this research. To carry out this study, 65 Malaysian IPOs over the period of 2011 until 2015 is examined. The empirical findings of the research, state that leverage and interaction between institution ownership and leverage do have a significant relationship with liquidity of newly listed shares in Bursa Malaysia. For control variables, offer size, offer price, board

characteristics and shareholder retention ratio are significantly impacted on liquidity of IPOs.

The positive insignificant relationship between institutional ownership and liquidity show that the high percentage of shares hold by institutional, do not give an impact towards liquidity of newly listed shares in Bursa Malaysia. It can be concluded that in Malaysia, private institutional ownership as an independent alone may not have a strong influence on the liquidity instead of it need a moderator to strengthen its relationship with liquidity of IPOs. The results confirm neither signal nor trading theory nor adverse selection theory can be apply in this research by using institutional ownership as standalone independent variable. Other studies that support this results are Kini and Mian (1995) and Sharma (2005) as the authors also fail to prove there is relationship between both variables.

In contrast, leverage is negatively significant with liquidity of IPOs. This supports adverse selection theory. As according to Lesmond (2008) also explain that issuing more debt allows informed trader to possess a larger proportion of firms shares, because of that more private information will be concentrated into existing equity and eventually increased the asymmetry information between inform and uninform investors. The result is increase the sensitivity of the informed traders signal of firm value and increase the variance of the informed trader demand. The market maker reacts to the increased variance in order to flow and reduces the liquidity of the stock. This result also

supported by by Frieder and Martell (2006), Bharath, Pasquariello and Wu (2008) and Lesmon(2008).

The next independent variable is interaction between institution ownership and leverage. The regression results shows whenever leverage become moderator of institution ownership it will strengthen its relationship with liquidity of IPOs and as a result the association between institution ownership and liquidity of IPOs after the interaction is negatively significant. This is proof in case of Malaysia, institution ownership need to interact with other variables to affect the liquidity level of IPOs. It supported by Tong and Ning (2004) firms with high leverage ratio give a negative signal that the firm faces a future financial problem and because of that, institutional investor opt to choose firms with low level of leverage ratio. This is due to institutional investors have a huge experience in retrieving and interpreting valuable information on firm performance.

Control variables such as offer size shows significant positive relationship between liquidity of newly listed shares in Bursa Malaysia and result supported by Ros Zam Zam Sapian et al.(2013). This is due to higher offer size, means more shares available in market and it will allow investors to trade more whenever it being listed in Bursa Malaysia. For offer price, result illustrate is there is significant negative association between liquidity and offer price. It is supported by Ros Zam Zam Sapian et al.(2013) that offer price is negatively related to liquidity. Risk however shows an insignificant positive relationship with liquidity. The positive relationship shows that the riskier the

stock the larger the spread and the higher the turnonver. It is consistent with with Carter and Manaster's (1990) argument that if investors have scarce resources to invest in information acquisition, they specialize in acquiring information for the most uncertain investments. The next control variable which is Board shows negatively significant relationship with liquidity of the shares at significance level 0.05. Main Market are used as a proxy for big-sized firms, and those listed on the ACE Market are used as a proxy for small-sized firms Othman Yong (2011). The last control variable is share retention ratio. The result of the regression shows that share retention ratio is significantly positive related to liquidity of newly listed shares. The result supported by Mingsheng Li et al. (2005) find out that retention ratio is positive related to volume turnover ratio and it confirm the signaling theory which indicate that the high retention by pre-IPO owners will attract more investors in the secondary market and increase market liquidit

5.3 Limitation of Study

The present study is examined the relationship between liquidity of IPOs and its explanatory variables (institutional ownership, leverage and interaction between institutional ownership and leverage). There is one limitation pointed out from this study. The limitation of this study is the lack of literature studies regarding the determinant of liquidity of newly listed shares in public. Especially literature that related to institutional ownership and leverage from prospectus with the liquidity of the IPOs in developing countries. Others than that is there is no previous that proof that interaction between private institution ownership and leverage will affect level of liquidity of IPOs.

The last one is this study does not include any special type of offer that are restricted offer-to-sale to Bumiputra investors as that make Malaysia IPO market is unique.

5.4 Recommendations of the Future Research

Potentially, the future study regarding topic can incorporate multiple proxies of liquidity into consideration. As far as this research is concerned, measurement that being uses to measure liquidity only trading volume. For example authors that use multiple proxies of liquidity are Ros Zam Zam Sapian et al.(2013) as they use not just volume turnover but also trading volume, bid-spread and illiquidity. Different types of measurement of liquidity might give different results especially to prove the institutional ownership relationship with liquidity of IPOs. Other recommendations is researcher might want to extend the period of the study of the dependent variable which is volume more than 30 trading days and compare it with the 30 days and test the robustness. For instances researchers that conduct study more than 30 trading days is Ros Zam Zam Sapian et al.(2013) using 60 trading days and Mingsheng Li (2008) up to 240 trading days. The last recommendation is authors can include the special type of offer that are restricted offer-to-sale to Bumiputra investors as that makes Malaysia IPO market is unique

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APPENDIX A

DESCRIPTIVE STATISTICS INDICATORS FOR THE VARIABLES OF THE RESEARCH

	Volume	Shareholder retention	Risk	Priv	Offer price	Offer size	Leverage	Board
Mean	5633.647	69.77287	0.051210	54.22912	1.029231	7.929874	0.468308	0.753846
Median	2817.847	70.86774	0.038495	68.09211	0.750000	7.695830	0.470000	1.000000
Maximum	36256.21	94.78369	0.159891	93.33000	3.380000	9.804055	1.240000	1.000000
Minimum	26.88000	8.937290	0.002991	0.000000	0.120000	6.864587	0.020000	0.000000
Std. Dev.	7391.115	11.76471	0.037973	31.36148	0.803886	0.767930	0.263756	0.434122
Skewness	2.330762	-2.135072	0.998134	-0.70819	1.313927	0.884025	0.676216	-1.17857
Kurtosis	8.551984	12.48144	3.274395	2.016568	3.997739	2.684280	3.697567	2.389031
Jarque-Bera	142.3346	292.8570	10.99686	8.052552	21.39882	8.736221	6.271606	16.05881
Probability	0.000000	0.000000	0.004093	0.017841	0.000023	0.012675	0.043465	0.000326
Sum	366187.1	4535.237	3.328669	3524.893	66.90000	515.4418	30.44000	49.00000
Sum Sq. Dev.	3.50E+09	8858.144	0.092287	62946.71	41.35886	37.74188	4.452314	12.06154
Observations	65	65	65	65	65	65	65	65

APPENDIX B

RELATIONSHIP BETWEEN INSTITUTIONAL OWNERSHIP, LEVERAGE AND INTERACTION OF INSTITUTIONAL OWNERSHIP AND LEVERAGE WITH LIQUIDITY OF IPOs.

Dependent Variable: VOLUME_30_DAYS
Method: Least Squares
Date: 11/20/16 Time: 15:16
Sample: 1 65
Included observations: 65
White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PRIV	30.59699	22.06148	1.386897	0.1710
LEV	-5920.550	3493.650	-1.694660	0.0957
LOG_OFFER_SIZE	8791.917	2407.642	3.651670	0.0006
OFFERPRICE_RM_	-5687.545	1848.502	-3.076839	0.0032
RISK_30	36025.58	18418.82	1.955912	0.0555
SHARE_RETENTION	148.2939	97.36919	1.523006	0.1334
BOARD	-4711.669	2700.942	-1.744454	0.0866
CENTLEV*CENTPRIV	-171.4925	75.33176	-2.276496	0.0267
C	-65887.57	21235.28	-3.102741	0.0030

R-squared	0.320374	Mean dependent var	5633.647
Adjusted R-squared	0.223284	S.D. dependent var	7391.115
S.E. of regression	6513.899	Akaike info criterion	20.52915
Sum squared resid	2.38E+09	Schwarz criterion	20.83022
Log likelihood	-658.1974	Hannan-Quinn criter.	20.64794
F-statistic	3.299777	Durbin-Watson stat	1.911062
Prob(F-statistic)	0.003725	Wald F-statistic	3.477849
Prob(Wald F-statistic)	0.002533		

APPENDIX C

RELATIONSHIP BETWEEN INSTITUTIONAL OWNERSHIP AND LEVERAGE WITH LIQUIDITY OF IPOs

Dependent Variable: VOLUME_30_DAYS
Method: Least Squares
Date: 11/15/16 Time: 21:53
Sample: 1 65
Included observations: 65

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PRIV	24.42355	29.24711	0.835076	0.4072
LEV	-6022.237	3364.538	-1.789915	0.0788
LOG_OFFER_SIZE	9051.941	2409.023	3.757516	0.0004
OFFERPRICE_RM_	-5443.342	2245.645	-2.423954	0.0185
RISK_30	30501.25	24534.12	1.243218	0.2189
BOARD	-5816.486	2274.392	-2.557380	0.0132
SHARE_RETENTION	149.5291	80.81285	1.850314	0.0695
C	-66659.18	19488.29	-3.420473	0.0012

R-squared	0.278440	Mean dependent var	5633.647
Adjusted R-squared	0.189828	S.D. dependent var	7391.115
S.E. of regression	6652.710	Akaike info criterion	20.55825
Sum squared resid	2.52E+09	Schwarz criterion	20.82587
Log likelihood	-660.1433	Hannan-Quinn criter.	20.66385
F-statistic	3.142223	Durbin-Watson stat	1.822745
Prob(F-statistic)	0.007064		

APPENDIX D

MULTICOLLINEARITY TEST

Variance Inflation Factors
Date: 10/05/16 Time: 15:50
Sample: 1 65
Included observations: 65

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
SHARE_RETENTION	6530.717	47.99993	1.307093
RISK_30	6.02E+08	3.573428	1.255118
PRIV	855.3936	4.911012	1.216583
OFFERPRICE_RM_	5042923.	12.55809	4.712526
LOG_OFFER_SIZE	5803390.	540.9066	4.948893
LEV	11320117	4.784888	1.138779
BOARD	5172859.	5.727032	1.409731
C	3.80E+08	557.7809	NA

APPENDIX E

HETEROSKEDASTICITY TEST

Heteroskedasticity Test: White

F-statistic	2.281819	Prob. F(41,23)	0.0188
Obs*R-squared	52.17339	Prob. Chi-Square(41)	0.1133
Scaled explained SS	100.4760	Prob. Chi-Square(41)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 11/24/16 Time: 03:35
Sample: 1 65
Included observations: 65
White heteroskedasticity-consistent standard errors & covariance
Collinear test regressors dropped from specification

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.24E+10	9.31E+09	1.326110	0.1978
PRIV^2	45714.96	22837.79	2.001724	0.0572
PRIV*LEV	29752133	51463111	0.578125	0.5688
PRIV*LOG_OFFER_SIZE	1728023.	1287425.	1.342232	0.1926
PRIV*OFFERPRICE_RM_	-3738248.	2079974.	-1.797257	0.0854
PRIV*RISK_30	11642275	16511861	0.705086	0.4878
PRIV*SHARE_RETENTION	64295.62	58433.27	1.100326	0.2826
PRIV*BOARD	1227063.	1380365.	0.888941	0.3832
PRIV*CENTLEV*CENTPRIV	-121564.9	101512.3	-1.197539	0.2433
PRIV	-32932156	31877244	-1.033093	0.3123
LEV^2	2.44E+08	1.75E+08	1.396998	0.1757
LEV*LOG_OFFER_SIZE	-4.12E+08	3.06E+08	-1.346823	0.1912
LEV*OFFERPRICE_RM_	3.86E+08	3.53E+08	1.093711	0.2854
LEV*RISK_30	8.92E+09	4.93E+09	1.810007	0.0834
LEV*SHARE_RETENTION	-6657008.	5983529.	-1.112555	0.2774
LEV*BOARD	-1.88E+08	2.36E+08	-0.796072	0.4341
LEV*CENTLEV*CENTPRIV	-14370606	9951877.	-1.444010	0.1622
LEV	1.35E+09	2.24E+09	0.603419	0.5521
LOG_OFFER_SIZE^2	2.54E+08	1.51E+08	1.677207	0.1070
LOG_OFFER_SIZE*OFFERPRICE_RM_	-4.16E+08	2.65E+08	-1.567413	0.1307
LOG_OFFER_SIZE*RISK_30	-3.19E+09	1.54E+09	-2.074586	0.0494
LOG_OFFER_SIZE*SHARE_RETENTION	7495098.	4784800.	1.566439	0.1309
LOG_OFFER_SIZE*BOARD	-4.31E+08	2.31E+08	-1.868042	0.0745
LOG_OFFER_SIZE*CENTLEV*CENTPRIV	-2659748.	5564086.	-0.478021	0.6371
LOG_OFFER_SIZE	-3.51E+09	2.26E+09	-1.551758	0.1344
OFFERPRICE_RM_^2	1.36E+08	1.09E+08	1.244200	0.2260
OFFERPRICE_RM_*RISK_30	1.33E+09	7.50E+08	1.770615	0.0899
OFFERPRICE_RM_*SHARE_RETENTION	-11391685	6210398.	-1.834292	0.0796
OFFERPRICE_RM_*BOARD	7.88E+08	2.22E+08	3.549159	0.0017
OFFERPRICE_RM_*CENTLEV*CENTPRIV	8582856.	6737942.	1.273810	0.2155

OFFERPRICE_RM_	3.01E+09	2.15E+09	1.399582	0.1750
RISK_30^2	-1.68E+10	1.15E+10	-1.457534	0.1585
RISK_30*SHARE_RETENTION	-51849881	62810214	-0.825501	0.4176
RISK_30*BOARD	9.52E+08	2.05E+09	0.465441	0.6460
RISK_30*CENTLEV*CENTPRIV	52518934	80078153	0.655846	0.5184
RISK_30	2.34E+10	1.29E+10	1.817129	0.0823
SHARE_RETENTION^2	-25789.75	71593.63	-0.360224	0.7220
SHARE_RETENTION*BOARD	-2276469.	5260183.	-0.432774	0.6692
SHARE_RETENTION*CENTLEV*CENTPRIV	-17946.50	230502.9	-0.077858	0.9386
SHARE_RETENTION	-40062598	38161207	-1.049825	0.3047
BOARD^2	3.03E+09	1.78E+09	1.708616	0.1010
BOARD*CENTLEV*CENTPRIV	-7492290.	7898689.	-0.948549	0.3527

R-squared	0.802668	Mean dependent var	36555836
Adjusted R-squared	0.450901	S.D. dependent var	83920959
S.E. of regression	62186454	Akaike info criterion	38.98259
Sum squared resid	8.89E+16	Schwarz criterion	40.38758
Log likelihood	-1224.934	Hannan-Quinn criter.	39.53695
F-statistic	2.281819	Durbin-Watson stat	2.421447
Prob(F-statistic)	0.018766		